

### **V. REMARKS**

Applicant hereby sets forth a more detailed explanation concerning how the present invention according to the amended Claim 1 is distinguished over Anthony and Sado. Applicant respectfully requests the Examiner's careful consideration of the following remarks:

re Anthony:

The Applicant's invention of amended Claim 1 is for obtaining an open polyimide molding product required to be possessed of a high surface accuracy such as an illumination reflector board. An illumination reflector board which is required to have a high surface accuracy tends to fail to possess desirable reflection characteristics if such as crease (or wrinkle) and or distortion would be present on the surface thereof and/or unevenness in the thickness thereof.

In contrast to the above, the invention of Anthony is for obtaining a molding product such as a cushion sheet for separating and supporting arrays of solar cells. Cushion sheets are not required to have a high surface accuracy, and with them, the presence of such as crease (or wrinkle), distortion and/or unevenness in thickness as above is acceptable or does not much matter.

According to the invention of amended Claim 1, while a polyimide film is plasticized by a contactless heating, it is loaded with pressurizing gas, and accordingly pressure application can take place evenly over a whole area of the polyimide film and the polyimide film can be subjected to deformation (namely shaping) while it is maintained in a non-contact condition relative to a concave molding surface. At the final stage of the deformation, then, both pressurizing gas and depressurizing gas are simultaneously applied, when the polyimide film is contacted with the concave molding surface for the first time in its processing, so that there can be obtained such an open polyimide molding product which is absolutely free of such as crease (or wrinkle), distortion and/or unevenness in thickness.

As opposed to the above, according to Anthony, at an initial stage a polyimide film (1) is contacted on projections (3) of a die (2), and in such condition, vacuum is applied. In addition, the polyimide film (1) is not subjected to contactless heating and accordingly is not plasticized. As a consequence of the above, the polyimide film (1) undergoes harsh scrubbing against the heads of the projections (3), whereby on or

in the film (1), there becomes produced such as crease (wrinkle), distortion and/or unevenness in thickness.

Also, now that the polyimide film (1) is not plasticized as above, it can hardly be realized even if a vacuum is applied that a whole area of the film (1) is intimately contacted with the die (2), and as seen in Fig. 2(d), air is permitted to stay at roots of projections (3). In the condition of Fig. 2(d), the polyimide film, (1) together with the die (2) is placed in an autoclave, and by subjecting the film (1) to heating and pressure application in the autoclave, permanent deformation of the polyimide film (1) is for the first time accomplished. While the polyimide film (1) is plasticized and finally brought to a condition of being intimately contacted with the die (2) as shown in Fig. 2(e), in the intermediate course of the processing up to when the film (1) undergoes an intimate contact as above there is a difference generated in the thermal hysteresis between the molding surface contacted with the die (2) and heated and that heated without contacting the die (2), so that there becomes a conspicuous variation produced in the plasticized condition over the film (1), resulting in a molding variation or an uneven result of molding. If such a molding product is put to use for an illumination reflector board, the attainable optical characteristic is only extremely poor.

With reference to Example 1 of the present application, the value of force of compression by gas according to the invention of the amended Claim 1 is known to be 0.4 MPa (=4 bars), and the value of decompression to be imparted simultaneously with compression in the final stage is 40 kPa. (=0.4 bars). Thus, the sum of compression force and decompression force is limited only to 4.4 bars. Molding can be effectively performed at such a limited pressure value according to the amended Claim 1 invention, and this is because the polyimide film is plasticized through contactless heating.

As opposed to the above, processed according to Anthony is a polyimide film which is not plasticized, so that the pressure force to be applied is set to be 5 - 15 bars or, more preferably, 11 bars (col. 3, lines 29-30). Such a high pressure cannot be attained unless in an autoclave, and also it is indispensable that the molding device has to be relatively large in size or scale.

According to the invention of the amended Claim 1, the pressure to be applied is relatively low, so that as seen from the hereto attached photo copy, molding can

be carried out only if the polyimide film is placed between a pressing die and a molding die: Unnecessary is the use of an autoclave for the generation of a high pressure. Further, although the Examiner points out that the pressing die is the same as the autoclave, the autoclave is devoid of a function to hold a polyimide film between mold members and cannot be regarded as being comparable to a pressing die.

re Sado:

According to Sado, a shaped product is pressure molded by a press mold, and this method is identical with the one illustrated in/by Comparative Example 1 in/of the present application. According to pressure molding, a polyimide sheet is subjected to press-stretching, so that such as unevenness in thickness is likely, and this can be clearly seen with reference to the above quoted Comparative Example 1 in the specification of the present application.

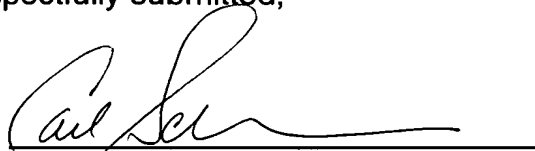
In view of the foregoing, reconsideration of the application and allowance of the pending claims are respectfully requested. Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' representative at the telephone number listed below.

Should additional fees be necessary in connection with the filing of this paper or if a Petition for Extension of Time is required for timely acceptance of the same, the Commissioner is hereby authorized to charge Deposit Account No. 18-0013 for any such fees and Applicant(s) hereby petition for such extension of time.

Respectfully submitted,

Dated: February 20, 2004

By:



David T. Nikaido  
Reg. No. 22,663

Carl Schaukowitch  
Reg. No. 29,211

**RADER, FISHMAN & GRAUER PLLC**  
1233 20<sup>th</sup> Street, N.W. Suite 501  
Washington, D.C. 20036  
Tel: (202) 955-3750  
Fax: (202) 955-3751  
Customer No. 23353

DC147960